

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Xing LI et al.

Group Art Unit: 2624

Application No.: 10/709,833

Examiner: A. WOLDEMARIAH

Filed: June 1, 2004

Docket No.: 119021

For: SYSTEMS AND METHODS FOR ADJUSTING PIXEL CLASSIFICATION USING
BACKGROUND DETECTION

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This request is being filed with a Notice of Appeal. Review of the February 10, 2009 Final Rejection is requested for the reasons set forth in the attached five or fewer sheets.

Should any questions arise regarding this submission, or the Review Panel believe that anything further would be desirable in order to place this application in even better condition for allowance, the Review Panel is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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Date: May 1, 2009

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REMARKS

Claims 1-22 are pending. Review of the February 10, 2009 Final Rejection in view of the following remarks is respectfully requested.

Claims 1-22 stand rejected under 35 U.S.C. §103(a) over Lin (U.S. Patent Publication No. 2002/0076103) in view of Applicants' "admitted prior art background section". The rejection is improper and should be withdrawn.

The Final Rejection commits clear error when it asserts that Applicants' "admitted prior art background section" discloses that it was known to determine a background intensity level of an image "based on substantially all of the pixels of the image." Because the above-quoted feature is present in each of Applicants' independent claims (claims 1, 8 and 15), reversing the Examiner's decision should result in withdrawal of the rejection, which is the only rejection, and allowance of this application.

In responding to Applicants' arguments filed on November 12, 2008, the Office Action alleges that Applicants' Background section discloses that it was known to determine the background intensity level based on substantially all of the pixels of the image and that Lin discloses a pixel classification based on substantially all the pixels of the image. Applicants respectfully disagree.

Applicants' Description of Related Art section discloses that "background detection is performed by sampling pixel values either within a sub-region of the document (typically, leading end) or across the whole documents" (emphasis added). In particular, paragraph [0012] states:

Conventionally, background detection is performed by sampling pixel values either within a sub-region of the document (typically, the leading edge) or across the whole document. For conventional processes, only a portion (i.e., not the full document) is used to detect the background of the document to be reproduced. The detected lead-edge or other sub-region background

information is then used to process and classify each of the pixels of the scanned image.

The use of "sampling" in Applicants' specification is commonly understood to refer to "a small portion, pieces, or segment."¹ This conventional method of determining intensity level of an image based on sampling pixel values is not..."a pixel classification...based on substantially all the pixels of the image..." as recited in independent claims 1 and 8. "Sampling" is the antithesis of "substantially all." Applicants' specification is consistent with this ordinary meaning of "sampling" in that Applicants' specification explicitly indicates that determining "based on substantially all the pixels..." is different from "sampling". See, for example, paragraphs [0014] and [0056] of Applicants' specification (especially last sentence of paragraph [0056]), which are reproduced below.

Various exemplary embodiments of the invention provide a pixel classification method for classifying pixels of an image by determining a background intensity level of an image which is based on substantially all of the pixels of the image. The method also involves checking the classification of the pixel based on the determined background intensity level of the image.

Various exemplary embodiments of the invention may be incorporated into the exemplary segmentation and processing method described above. In particular, various exemplary embodiments of the invention use the results of a full page based background detection to adjust, as necessary, the classification of the pixels by checking the classification. Various exemplary embodiments of the invention check the classification of a pixel by comparing the intensity of the pixel with the intensity of the white point or the background intensity level of the image. The white point or the background intensity level of the image is determined based on an analysis of substantially all of the pixels of the document, and not just a sampling of the pixels or a sub-region of the image. (emphasis added)

Thus, "Applicants' admitted prior art" does not disclose that it was known to determine background intensity level based on "substantially all of the pixels" as recited in independent claims 1 and 8, and furthermore would not have rendered it obvious to one having ordinary

¹ American Heritage College Dictionary, fourth edition, page 1228.

skill in the art at the time of the invention to modify Lin to obtain the combinations of features recited in claims 1 and 8.

Additionally, the Office Action does not respond to Applicants' argument that Lin teaches away from the claims 1 and 8 feature of "determining if reclassification is required..." because at the time Lin makes a first pass of the image, Lin does not record the macro-detection or micro-detection results from the pixel of the image. See Lin paragraph [0060], which states:

Once each portion of the image data has been classified according to standard image types, further processing of the image data can be efficiently performed. Because the micro-detection and macro-detection results from the first pass are not recorded for each pixel of the image, the memory requirements for a device embodying the invention are minimized. This helps to minimize the cost of such an apparatus.

Applicants' specification explicitly acknowledges systems such as Lin's and distinguishes the features of the claims, for example, at paragraph [0013], which states:

In known two-pass methods, for example, the original classification of a pixel as background is done during the first pass using lead-edge or other sub-region information and pixels classified as background during the first pass are not re-classified during the second pass. As lead-edge or other sub-region information may not be a true indication of the background of the captured image, misclassification of pixels as background can occur. For example, a background pixel can be classified as smooth contone or vice versa. Similarly, in known two-pass methods, pixels are subjected to a second pass when the pixel was associated with a "mixed" window during the first pass. Thus, in known classification methods, the classification of a pixel is not reconsidered. However, as discussed above, because it may be advantageous to classify pixels of different image types differently, the misclassification of a pixel as background, for example, can affect background suppression and also the rendering of the types of pixels.

Lin performs the pixel classification as explained in Applicants' Background of the Invention section. Thus, because Lin does not record the macro-detection or micro-detection results of

¹ American Heritage College Dictionary, fourth edition, page 1228.

the pixel, it is impossible for each pixel to be reclassified, as recited in independent claims 1 and 8.

Regarding independent claim 15, Lin and "admitted prior art" fail to disclose or render obvious "determining a background intensity level of an image, the background level being based on substantially all of the pixels of the image", and "checking the classification of at least a portion of pixels of the image based on the determined background intensity level of the image..." Lin classifies the intensity of each pixel based on the intensity of its surrounding pixels, not based on a background intensity level that is based on substantially all of the pixels of the image. See Lin paragraph [0053]. As explained above, the "admitted prior art" also does not disclose this feature. Thus, one having ordinary skill in the art would not have modified Lin in view of Applicants' "admitted prior art" to obtain the combination of features recited in claim 15.

Thus, claims 1, 8 and 15 are patentable. Accordingly, claims 2-7, 9-14 and 16-22 are also patentable for at least the reasons explained above with respect to claims 1, 8 and 15. Withdrawal of the rejection is requested.